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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 09/886,200
Filing Date: June 21, 2001
Appellant(s): TOBITA, ISAMU



Robert A. Voigt, Jr.
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 01, 2004.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

***(3) Status of Claims***

The statement of the status of the claims contained in the brief is correct.

***(4) Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

***(5) Summary of Invention***

The summary of invention contained in the brief is correct.

***(6) Issues***

The appellant's statement of the issues in the brief is correct.

***(7) Grouping of Claims***

The rejection of claims 1-4 and 6 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

The rejection of claims 12 and 13 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

Appellant's brief includes a statement that claims 5, 7, 8, 9, 10 and 11 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

***(8) Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

***(9) Prior Art of Record***

| | | |
|---|---|---|
| 5,039,238 | Kikuchi et al. | August 1991 |
| 4,774,882 | Ohsawa et al. | October 1988 |
| 4,566,813 | Kobayashi et al. | January 1986 |

IBM Technical Disclosure Bulletin, "Electronic Control of Print Impact in Single Element Typewriters", Volume No. 21, Issue No. 10 (March 01, 1979), pp. 4110 - 4112.

***(10) Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

**1.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**2.** **Claims 1-4, 6 and 10-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US # 5,039,238) in view of Ohsawa et al. (US # 4,774,882).

**With respect to claims 1-2, 4 and 6,** Kikuchi et al. teach a dot matrix printer or an impact printer or a form printer comprising a plurality of print wires or pins (131) for impacting a medium or a form on a platen, a drive means or a drive unit (Fig. 8) having a coil for driving the pins (131) in both forward and backward directions using magnetic force generated by electricity, electricity supply means (50) for supplying electricity to the coil, the impact force of the pins (131) are changed according to changes of the magnetic force and a CPU or an impact force controller (101) for controlling the impact force of the print wires or pins (131) (see Figs. 1-10 and cols. 1-6 of Kikuchi et al.)

Kikuchi et al. teach all the limitations as explained above, except for the limitation of the impacts force of the pins is changing according to the settings for characters that are to be printed.

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) according to the settings for characters to be printed (see col. 6 of Ohsawa et al.)

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. with an impact force controller for controlling the impact force of the hammer according to the settings for characters to be printed that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

**With respect to the recitation of "changing ... impact force" (lines 5-11 of claim 6),** Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) accordance to the settings for characters to be printed, the controller controlling the impact force of the print hammer by reducing or increasing the impact force of the print hammer according to the high density printing mode (thick characters) or normal density printing mode (fine characters) (see cols. 4-8 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. with an impact force controller for controlling the impact force of the print hammer in according to the high or normal density printing mode that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

**With respect to claim 3,** see col. 5 of Kikuchi et al. that teach a CPU or the impact force controller (101) for controlling the voltage that supply to the electromagnetic actuating means of the print hammers (131).

**With respect to claims 10 and 11,** Kikuchi et al. teach a method and a printing controller for a printer comprising print wires or pins (131) for print a plurality of dots to

form characters on a medium, a CPU or data analyzer (101) for identifying or determining the information or characters to be printed and for controlling the impact force of the print wires or pins (131) (see cols. 1-6 of Kikuchi et al.).

Kikuchi et al. teach all the limitations as explained above to claims 10 and 11, except for the limitation of "generating impact ... character set" (claim 10) and "a printer controller ...the pins" (claim 11).

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) according to the type of characters set which is identified or determined by the CPU or data analyzer (32) (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. with a pulse control circuit or a printer head controller (40) that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

3. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. and Ohsawa et al. as explained to claim 4 above, and in view of The IBM Technical Disclosure Bulletin (NN79034110)

**With respect to claim 5,** the modified device of Kikuchi et al. and Ohsawa et al. teach all the limitations as explained above to claim 4, except for the moving velocity of the pins is changed in order to alter the impact force.

The IBM Technical Disclosure Bulletin teach an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font (page 4110-4112).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. and Ohsawa et al. with the control means for assigning discrete impact force or impact velocities to each character font that taught by The IBM Technical Disclosure Bulletin so that the impact force for the selected character can be precisely achieved.

**4.** **Claims 7-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US # 5,039,238) in view of Kobayashi et al. (US # 4,566,813).

**With respect to claims 7 and 8,** Kikuchi et al. teach a dot matrix printer or an impact printer comprising a plurality of print wires or pins (131) for transferring the impact force and a CPU or an impact force controller (101) for controlling the impact force of the print wires or pins (see Figs. 1-10 and cols. 1-6 of Kikuchi et al.).

Kikuchi et al. teach all the limitations as explained above, except for the limitation of changing the impact force of the pins according to the number of dots that arranged across the widths of lines forming the print image.

Kobayashi et al. teach a dot matrix printer controller comprising a control circuit for controlling the pulse width current applied to the print heads in according to the total number of dots used to print character (print image) or a number of dots that arranged across the widths of lines forming the print image (see cols. 3-5 of Kobayashi et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the impact force controller of Kikuchi et al. to include the control circuit for controlling the pulse width current applied to the print heads in according to the total number of dots used to print character as taught by Kobayashi et al. so that the thickness or the print density of a selected character or image can be consistency maintained.

**With respect to claim 9 and the recitation of "the impact force... object image" (lines 6-8 of claim 8),** Kobayashi et al. teach a control circuit comprising a upper limit or a lower limit mode for control of increasing or decreasing the width of the applied pulse in according to the total of dots used to print character (print image) or a number of dots that arranged across the widths of lines forming the print image (see cols. 3-6 of Kobayashi et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the impact force controller of Kikuchi et al. to include the control circuit comprising a upper limit or a lower limit mode for control of increasing or decreasing the width of the applied pulse in according to the total of dots used to print character as taught by Kobayashi et al. so that print quality such as thickness or print density can be consistency maintained during the printing of a selected character.

5. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. (US # 5,039,238) and Ohsawa et al. (US # 4,774,882) in view of The IBM Technical Disclosure Bulletin (NN79034110)

**With respect to claims 12 and 13,** Kikuchi et al. teach a method and a printing controller for a printer comprising print wires or pins (131) for print a plurality of dots to form characters on a medium, a CPU or a data analyzer (101) for identifying or determining the information or characters to be printed and for controlling the impact force of the print wires or pins (131) (see cols. 1-6 of Kikuchi et al.).

Kikuchi et al. teach all the limitations as explained above, except for the limitation of changing the impact force of the pins according to the type of character set determining by the data analyzer.

Ohsawa et al. teach an impact printer comprising an energizing pulse generator or an impact force controller (36) for controlling the impact force of the hammer (16) according to the type of characters set which is identified or determined by the CPU or data analyzer (32) (see col. 6 of Ohsawa et al.).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. with a pulse control circuit or a printer head controller (40) that taught by Ohsawa et al. so that a design density for a selected character can be achieved.

The modified device of Kikuchi et al. and Ohsawa et al. teach all the limitations as explained above, except for limitation of the impact force of the pins is changing or being selected to a designated setup value corresponds to a character font determining by the data analyzer.

The IBM Technical Disclosure Bulletin teach an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font (page 4110-4112).

In view of this teaching, it would have been obvious to one of ordinary skill in the art to modify the device of Kikuchi et al. and Ohsawa et al. with the control means for assigning discrete impact force or impact velocities to each character font that taught by The IBM Technical Disclosure Bulletin so that the print quality of a variety of character font can be achieved.

***(11) Response to Argument***

The Argument in section VIII of the Appeal Brief filed on August 21, 2003 have been considered but are moot in view of the new ground(s) of rejection mailed on Dec. 17, 2003. Therefore, the following are response to the Argument in section IV of the Supplemental Appeal Brief filed on March 01, 2004.

With respect to the issues:

**A. Claims 1-4. 6 and 10-11 are not properly rejected under 35 U.S.C.§ 103(a) as being unpatentable over Kikuchi in view of Ohsawa.**

**1.** The Appellant has argued that Kikuchi and Ohsawa, taken singly or in combination, do not teach or suggest the limitations "identifying a character set to be printed" as recited in claim 10 and "a data analyzer, for determining the type of character set included in print data" as recited in claim 11.

The argument is not deemed to be persuasive because: Kikuchi teaches a CPU (101) for controlling all the operation in the printer includes receiving the print data signal and providing signals that control the print head to print the desired information, in view of the above teaching, it is clear to one of skill in the art that the CPU (101) that taught by Kikuchi comprising a components to receiving, converting, recognizing and analyzing the print data before sending a signal to controlling the print head to print the information. Therefore, the CPU (101) that taught by Kikuchi met the broad limitation of "identifying a character set to be printed" as recited in claim 10 and "a data analyzer, for determining the type of character set included in print data" as recited in claim 11. It is also noted that the Applicant is narrow down the limitation of "character set" by arguing that the character set is referring to a particular setting, font, etc., of characters (images) to be printed. However, in view of the Examiner, the limitation of "character set" as recited in claims 10 and 11 is a broad term that can be read on any set of character such as a set of character that include words and numbers, etc.

**2.** The Appellant has argued that The Examiner has not presented any objective evidence in support of combining a reference (Kikuchi) which teaches setting a parameter for controlling the printing force and detecting the position of the print wire to control the printing force with a reference (Ohsawa) which teaches a dot matrix printer that increases the printing impact energy in the case of a normal density imprint function and decreases the printing impact energy in the case of a high density imprint function and the Examiner's motivation is insufficient to support a *prima facie* case of obviousness for rejecting claims 1-6 and 10-13

The argument is not deemed to be persuasive because: Kikuchi teach controller that adjusts the printing force of the printing wires or pins in according to a setting parameter so that a printing of constant quality can be obtained (col. 12, lines 30-33) and while Kikuchi do not teach an impact force controller for changing the impacts force of the pins in according with the settings for characters or the types of characters to be printed, the Ohsawa teach an impact force controller (36) for controlling the impact force of the hammer or pin (16) in according with the settings for characters or the types of characters to be printed. Therefore, in view of the above teaching, it would have been obvious to one of skill in the art to modify the device of Kikuchi with an impact force controller for controlling the impact force of the hammer or pin in according to the settings for characters to be printed that taught by Ohsawa so that a design density for a selected character can be achieved. As mentioned above, a dot matrix printer of Kikuchi using a controller to adjust the printing forces of printing pins to obtained the printing quality and a dot matrix printer of Ohsawa using a controller to controlling the impact forces of the printing pin to obtained a high or low density of the character to be printed or in according to the setting or the types of characters to be printed. Therefore, it is proper and sufficient objective evidence for combining Kikuchi with Ohsawa to obtain a controller to control the impact forces of the printing pins so that the quality of a design density of a selected characters or setting characters can be achieved.

**3.** The Appellant has argued that by combining Kikuchi with Ohsawa, the principle of operation of Kikuchi would change and subsequently render the operation of Kikuchi to perform its purpose of generate signals indicating the position of the print wires

and therefore would no longer be able to control the printing force with a high reproducibility to ensure printing with an optimum printing force.

The argument is not deemed to be persuasive because: Kikuchi teach a controller that adjust the impact forces of the printing wires in according to a setting parameter so that a printing of constant quality can be obtained, and by combining Kikuchi with Ohsawa, one of skill in the art would modify the controller of Kikuchi to include only the controlling of the impact forces of the printing pin in according to a setting of a high or low density of the character to be printed or in according to the setting or the types of characters to be printed; with this modification the combined product of Kikuchi and Ohsawa would performing its main purpose.

**B. Claims 5 and 12-13 are not properly rejected under 35 U.S.C. §103(a) as being unpatentable over Kikuchi in view of Ohsawa and in further view of the IBM Disclosure Bulletin.**

**1.** The Appellant has argued that Kikuchi, Ohsawa and the IBM Disclosure Bulletin, taken singly or in combination, do not teach or suggest the limitation "a data analyzer, for determining the type of character set included in print data in accordance with the predetermined command that is entered when a character font is to be changed" as recited in claims 12 and 13.

The argument is not deemed to be persuasive because: the rejection of claims 12 and 13 are based on the combined product of Kikuchi, Ohsawa and the IBM Disclosure Bulletin (KOIBM), the combined product of KOIBM teach a CPU (101) for controlling all the operation in the printer includes receiving the print data signal and

providing signals that control the print head to print the desired information, in view of the above teaching, it is clear to one of skill in the art that the CPU (101) of the combined product of KOIBM comprising a components to receiving, converting, recognizing, determining and analyzing the print data that including determining the type of character set included in print data in accordance with the predetermined command that is entered when a character font is to be changed before sending a signal to controlling the print head to print the information. Therefore, the CPU (101) of combined product of KOIBM met the limitation of "a data analyzer, for determining the type of character set included in print data in accordance with the predetermined command that is entered when a character font is to be changed" as recited in claims 12 and 13. It is also noted that the Ohsawa teach the printing of a high (thick characters) or low (thin characters) density which met the limitation of the character set that have a particular thickness (fonts) for its characters.

**2.** The Appellant has argued that The Examiner has not presented any objective evidence in support of combining a reference (Kikuchi) which teaches setting a parameter for controlling the printing force and detecting the position of the print wire to control the printing force with a reference (Ohsawa) which teaches a dot matrix printer that increases the printing impact energy in the case of a normal density imprint function and decreases the printing impact energy in the case of a high density imprint function with a reference IIBM Disclosure Bulletin) which teaches assigning a specific impact velocity to each character and the Examiner has not presented a *prima facie* case of obviousness for rejecting claims 5, 12 and 13.

The argument is not deemed to be persuasive because: Kikuchi teach controller that adjusts the printing force of the printing wires or pins in according to a setting parameter so that a printing of constant quality can be obtained (col. 12, lines 30-33) and while Kikuchi do not teach an impact force controller for changing the impacts force of the pins in accordance with the settings for characters or the types of characters to be printed, the Ohsawa teach an impact force controller (36) for controlling the impact force of the hammer or pin (16) according to the settings for characters or the types of characters set which is identified or determined by the CPU or data analyzer (32) (col. 6 of Ohsawa), and while the combined product of Kikuchi and Ohsawa do not teach the impact force of the pins is changing or being selected to a designated setup value corresponds to a character font determining by the data analyzer, the IBM Technical Disclosure Bulletin teach an electronic control of print impact in a typewriters including control means for assigning discrete impact force or impact velocities to each character font. As mentioned above, a dot matrix printer of Kikuchi using a controller to adjust the printing forces of printing pins to obtained the printing quality, a dot matrix printer of Ohsawa using a controller to controlling the impact forces of the printing pin to obtained a high or low density of the character to be printed or in according to the setting or the types of characters to be printed and the IBM Disclosure Bulletin teach the use of an electronic control means for assigning discrete impact force or impact velocities to each character font. Therefore, it is proper and sufficient objective evidence for combining Kikuchi, Ohsawa and the IBM Disclosure Bulletin to obtain a controller to control the

impact forces of the printing pins so that the print quality of a variety of character font (thickness or density of character) can be achieved.

**3.** The Appellant has argued that The Examiner has not presented a reasonable expectation of success when combining Kikuchi with the IBM Disclosure Bulletin.

The argument is not deemed to be persuasive because: the Kikuchi patent teaches a dot matrix printer comprising a controller for controlling the impact forces of the printing pins on a printing medium and although the IBM Disclosure Bulletin teaches a typewrite, however the typewriter of the IBM Disclosure Bulletin including an electronic control of the print impact of the print element; since both device (Kikuchi and IBM) teach a controlling component to control the print impact of the print element or pin on the print medium. Therefore, it is proper and reasonable expectation of success when combining Kikuchi with the IBM Disclosure Bulletin.

**C. Claims 7-9 are not properly patentable under 35 U.S.C. §103(a) as being unpatentable over Kikuchi in view of Kobayashi.**

**1.** The Appellant has argued that Kikuchi and Kobayashi, taken singly or in combination, do not teach or suggest the limitations "wherein the impact force is set to a mode at one of a plurality of levels, and the impact force controller changes the mode in accordance with the number of dots that are arranged across the widths of lines forming an object image" as recited in claim 8 and "wherein, the command for changing the mode is included in print data for a character, and the impact force controller changes the mode in response to said mode" as recited in claim 9.

The argument is not deemed to be persuasive because: the rejection of claims 8 and 9 are based on the combined product of Kikuchi and Kobayashi; the Kikuchi teach a dot matrix printer comprising a controller for adjusting or controlling the impact force of the printing pins in accordance with a setting parameter which can be set to a plurality of levels (col. 5) to obtain a printing quality; and the Kobayashi teach a dot matrix printer comprising a controller that including dot counter (14) which counts the total number of dots used to print one character or number of dots that arranged across the widths of lines forming the print image, and a pulse width control for applying a voltage to the print head for different numbers of dots for printing. Therefore, the combined product of Kikuchi and Kobayashi (see the explanation for combining Kikuchi and Kobayashi in the rejection to claims 7-9 above) met the limitations of "wherein the impact force is set to a mode at one of a plurality of levels, and the impact force controller changes the mode in accordance with the number of dots that are arranged across the widths of lines forming an object image" as recited in claim 8 and "wherein, the command for changing the mode is included in print data for a character, and the impact force controller changes the mode in response to said mode" as recited in claim 9.

**2.** The Appellant has argued that The Examiner has not presented any objective evidence in support of combining a reference (Kikuchi) which teaches setting a parameter for controlling the printing force and detecting the position of the print wire to control the printing force with a reference (Kobayashi) which teaches a dot matrix controller comprising a counter means for counting the number of dots of a dot pattern to

be printed and the Examiner has not presented a *prima facie* case of obviousness for rejecting claims 7-9.

The argument is not deemed to be persuasive because: Kikuchi teach controller that adjusts the printing force of the printing wires or pins in according to a setting parameter so that a printing of constant quality can be obtained (col. 12, lines 30-33) and while Kikuchi do not teach an impact force controller changes the mode in accordance with the number of dots that are arranged across the widths of lines forming an object image, the Kobayashi teach a dot matrix printer comprising a controller that including dot counter (14) which counts the total number of dots used to print one character or number of dots that arranged across the widths of lines forming the print image and a pulse width control for applying a voltage to the print head for different numbers of dots for printing. As mentioned above, a dot matrix printer of Kikuchi using a controller to adjust the printing forces of printing pins to obtained the printing quality and a dot matrix printer of Kobayashi using a controller to controlling the current applied to the print heads in according to the total number of dots used to print character. Therefore, it is proper and sufficient objective evidence for combining Kikuchi with Kobayashi to obtain a controller to control the impact forces of the printing pins in accordance to the total number of dots used to print character so that the quality of a design density of a selected characters or setting characters can be achieved.

***(12) Conclusion***

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Patent Examiner

MHC
November 28, 2004

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